

<p>1. Anti-differentiate $\frac{2x}{3-2x-x^2}$.</p>	<p>2. Find $\int \frac{x-1}{3-2x+x^2} dx$.</p>
<p>3. Anti-differentiate $\frac{1}{2-x^2}$.</p>	<p>4. Find $\int \frac{1}{2+x^2} dx$.</p>
<p>5. Evaluate $\int_{-1}^1 \frac{1}{(2+x)^2} dx$.</p>	<p>6. Find $\int \frac{x}{(2+x)^2} dx$.</p>
<p>7. Given $f'(x) = \frac{x^2+3x}{x^2-4x+3}$, find $f(x)$.</p>	<p>8. Given $f'(x) = \frac{x^2+3x}{x^2+4x+3}$, find $f(x)$.</p>
<p>9. Given $f(x) = \frac{1}{1-(x-1)^2}$, find $\int f(x) dx$.</p>	<p>10. Given $f(x) = \frac{1}{1+(x-1)^2}$, find $\int f(x) dx$.</p>
<p>11. Find $\int \frac{x^2}{1+(x-1)^2} dx$.</p>	<p>Numerical, algebraic and worded answers.</p> <ol style="list-style-type: none"> 1. $-\frac{3}{4} \log_e 3-2x-x^2 + c$ 2. $\frac{1}{2} \log_e 3-2x+x^2 + c$ 3. $\frac{\sqrt{2}}{4} \log_e \left \frac{\sqrt{2+x}(\sqrt{2-x})}{\sqrt{2-x}} \right + c$ 4. $\frac{1}{\sqrt{2}} \tan^{-1} \left(\frac{x}{\sqrt{2}} \right) + c$ 5. $\frac{2}{3}$ 6. $\log_e 2+x + \frac{2}{(2+x)} + c$ 7. $x + \log_e \left(\frac{(x-3)^{1/2}}{ x-1 ^2} \right) + c$ 8. $x - \log_e x+1 + c$ 9. $\frac{1}{2} \log_e \left \frac{x}{(2-x)} \right + c$ 10. $\tan^{-1}(x-1) + c$ 11. $x + \log_e x^2 - 2x + 2 + c$